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IN THE CLAIMS

Please amend the claims as follows:

1. (original) A radio receiver, comprising:

- a pulse generator, for generating pulses based on an expected received signal;
- a multiplier, for multiplying a received signal by the generated pulses; and
- a circuit for receiving the multiplier output, wherein said circuit is for operating operable in a first mode ~~to act as~~ a low-pass filter, and for operating wherein said circuit is operable in a second mode ~~to act as~~ an integrator.

2. (original) A receiver as claimed in claim 1, comprising an analog-to-digital converter, for receiving an output from said circuit.

3. (original) A receiver as claimed in claim 1, wherein said circuit includes an analog-to-digital converter.

4. (currently amended) A radio receiver, comprising:

- a pulse generator, for generating pulses based on an expected received signal;
- a multiplier, for multiplying a received signal by the generated pulses; and
- a circuit for receiving the multiplier output, wherein said circuit is for operating operable in a first mode to act as a low-pass filter, and for operating wherein said circuit is operable in a second mode to act as an integrator ~~A receiver as claimed in claim 3, wherein said circuit includes an analog-to-digital converter, and wherein said circuit comprises a sigma-delta analog-to-digital converter having a feedback loop, and an integrator, wherein, in said first mode, said integrator is included in said~~

feedback loop of said sigma-delta analog-to-digital converter, and, in said second mode, the output of the multiplier is connected to the integrator, and the integrator output is connected to the sigma-delta analog-to-digital converter.

5. (currently amended) A radio receiver as claimed in claim 1, comprising—

- a pulse generator, for generating pulses based on an expected received signal;
- a multiplier, for multiplying a received signal by the generated pulses; and
- a circuit for receiving the multiplier output, wherein said circuit is for operating operable in a first mode to act as a low-pass filter, and for operating wherein said circuit is operable in a second mode to act as an integrator

means for detecting when the receiver has synchronized to a received pulse sequence, and for controlling said receiver to operate in said first mode before it has synchronized to a received pulse sequence, and to operate in the second mode when it has synchronized to a received pulse sequence.

6. (original) A method of operating a radio receiver, comprising:
multiplying a received signal by a sequence of generated pulses;

- in a first mode, applying a multiplication output to a low-pass filter, and
- in a second mode, applying the multiplier output to an integrator.

7. (currently amended) A method of operating a radio receiver as claimed in claim 6, further comprising:

- multiplying a received signal by a sequence of generated pulses;

- in a first mode, applying a multiplication output to a low-pass filter, and
- in a second mode, applying the multiplier output to an integrator
- detecting when the receiver has synchronized to a received pulse sequence;
- operating the receiver in said first mode before it has synchronized to a received pulse sequence, and
- operating the receiver in the second mode when it has synchronized to a received pulse sequence.

8. (previously presented) A method as claimed in claim 6, comprising generating said sequence of pulses in a form corresponding to pulses in an expected received signal.

9. (original) A method as claimed in claim 6, for receiving an Ultra Wideband radio signal.

10. (original) A wireless communications system, comprising:

- a radio transmitter, for generating and transmitting a radio signal; and
- a radio receiver, wherein the radio receiver comprises:
 - a pulse generator, for generating pulses based on an expected received signal;
 - a multiplier, for multiplying a received signal by the generated pulses; and
 - a circuit for receiving the multiplier output, wherein said circuit is ~~operable for operating~~ in a first mode to act as a low-pass filter, and wherein said circuit is operable for operating in a second mode to act as an integrator.

11. (original) A wireless communications system as claimed in claim 10, wherein said receiver further comprises an analog-to-digital converter, for receiving an output from said circuit.

12. (original) A wireless communications system as claimed in claim 10, wherein said circuit includes an analog-to-digital converter.

13. (currently amended) A wireless communications system ~~as claimed in claim 12~~, wherein said circuit comprises:

- a radio transmitter, for generating and transmitting a radio signal; and

- a radio receiver, wherein the radio receiver comprises:

- a pulse generator, for generating pulses based on an expected received signal;

- a multiplier, for multiplying a received signal by the generated pulses; and

- a circuit for receiving the multiplier output, wherein said circuit is for operating in a first mode to act as a low-pass filter, and wherein said circuit is for operating in a second mode to act as an integrator, wherein said circuit includes an analog-to-digital converter

a sigma-delta analog-to-digital converter having a feedback loop, and an integrator, wherein, in said first mode, said integrator is included in said feedback loop of said sigma-delta analog-to-digital converter, and, in said second mode, the output of the multiplier is connected to the integrator, and the integrator output is connected to the sigma-delta analog-to-digital converter.

14. (currently amended) A wireless communications system ~~as claimed in claim 10~~, comprising:

- a radio transmitter, for generating and transmitting a radio signal; and

- a radio receiver, wherein the radio receiver comprises:
 - a pulse generator, for generating pulses based on an
expected received signal;
 - a multiplier, for multiplying a received signal by the
generated pulses; and
 - a circuit for receiving the multiplier output, wherein said
circuit is for operating in a first mode to act as a low-pass
filter, and wherein said circuit is for operating in a second mode
to act as an integrator, wherein said circuit includes an analog-
to-digital converter, and
 wherein said receiver further comprises means for detecting
when the receiver has synchronized to a received pulse sequence,
and for controlling said receiver to operate in said first mode
before it has synchronized to a received pulse sequence, and to
operate in the second mode when it has synchronized to a received
pulse sequence.